

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listings of Claims:

Claim 1 (amended): A method of processing a semiconductor wafer that reduces plasma-induced damage to the wafer comprising performing the following ~~while maintaining a plasma~~ in a reaction chamber:

creating a plasma in the reaction chamber;

inserting the wafer into the reaction chamber;

supplying power to the plasma at a first level to create a process condition

~~performing a plasma process on the wafer at a process temperature;~~

processing the wafer in the process condition plasma;

reducing the power supplied to the plasma to a second level lower than the first level to create an idle condition plasma, thereby terminating the processing of the wafer;

cooling the wafer in the presence of the idle condition plasma ~~to a removal temperature which is less than the process temperature;~~ and

removing the wafer from the reaction chamber.

Claim 2 (amended): The method of Claim 1, wherein the wafer reaches a process temperature during processing and a removal temperature during removing, and wherein the removal temperature is at least between about 100°C and about 500°C below the process temperature.

Claim 3 (amended): The method of Claim 2 4, wherein the process temperature is greater than about 300°C and the removal temperature is less than about 300°C.

Claim 4 (amended): The method of Claim 2 4, wherein the removal temperature is between about 80°C and about 300°C.

Claim 5 (amended): The method of Claim 1, further comprising cooling the wafer to between about 15°C and 30°C before inserting the wafer into the reaction chamber.

Claim 6 (amended): The method of Claim 1, wherein processing the wafer ~~comprises the plasma process is~~ plasma deposition of silicon dioxide.

Claim 7 (amended): The method of Claim 6, wherein the wafer reaches a process temperature is between about 275°C and 325°C during processing.

Claim 8 (amended): The method of Claim 1, wherein processing the wafer ~~comprises the plasma process is~~ plasma deposition of fluorine doped silicon dioxide.

Claim 9 (amended): The method of Claim 8, wherein the wafer reaches a process temperature is between about 325°C and 375°C during processing.

Claim 10 (amended): The method of Claim 1, wherein processing the wafer ~~comprises the plasma process is~~ plasma deposition of silicon dioxide for shallow trench isolation.

Claim 11 (amended): The method of Claim 10, wherein the wafer reaches a process temperature is between about 400°C and 550°C during processing.

Claim 12 (amended): The method of Claim 1, wherein processing the wafer ~~comprises the plasma process is~~ plasma deposition of phosphorus-doped silicon dioxide.

Claim 13 (amended): The method of Claim 12, wherein the wafer reaches a process temperature is between about 400°C and 550°C during processing.

Claim 14 (amended): The method of Claim 1, wherein processing the wafer ~~comprises the etching plasma process is~~ plasma etch of photoresist.

Claim 15 (amended): The method of Claim 1, wherein cooling the wafer lasts to a ~~removal temperature is cooling the wafer for~~ between about 2 seconds and about 30 seconds.

Claim 16 (amended): The method of Claim 1, wherein cooling the wafer to a removal temperature comprises blowing a gas over the wafer.

Claim 17 (amended): The method of Claim 1, wherein the an idle condition plasma ~~condition is maintained during used while inserting the wafer, cooling the wafer, and removing the wafer.~~

Claim 18 (original): The method of Claim 1, wherein the wafer comprises a gate dielectric layer.

Claim 19 (amended): The A method of Claim 1 wherein the idle condition plasma is maintained during the step of processing a semiconductor wafer that reduces plasma-induced damage to the wafer comprising:

- ~~cooling the wafer to a temperature below about 100°C;~~
- ~~transferring the wafer into a reaction chamber;~~
- ~~igniting a plasma within the reaction chamber;~~
- ~~performing a plasma process on the wafer at a process temperature;~~
- ~~cooling the wafer to a removal temperature which is less than the process temperature while maintaining the plasma; and~~
- ~~removing the wafer from the reaction chamber.~~

Claim 20 (amended): The method of Claim 19 wherein the idle condition plasma is extinguished during the step of while removing the wafer from the reaction chamber.

Claim 21 (new): The method of Claim 19 comprising inserting a second wafer into the process chamber while maintaining the idle condition plasma.

Claim 22 (new): The method of Claim 21 comprising processing the second wafer by increasing the power to the first level so as to recreate the process condition plasma.

Claim 23 (new): The method of Claim 1 wherein inserting the wafer is performed before creating the plasma.

Claim 24 (new): The method of Claim 1 wherein inserting the wafer is performed after creating the plasma.